WHAT IS CLAIMED IS:

1. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:1.

2. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:1 and functional analogues thereof having at least one amino acid substitution into a naturally occurring or non-naturally occurring amino acid and having a haptotactic activity.

3. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:2.

4. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:2 and functional analogues thereof having at least one amino acid substitution into a naturally occurring or non-naturally occurring amino acid and having a haptotactic activity.

5. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:3.

6. A polypeptide, comprising an amino acid sequence as set forth in SEQ ID NO:3 and functional analogues thereof having at least one amino acid substitution into a naturally occurring or non-naturally occurring amino acid and having a haptotactic activity.

7. An isolated nucleic acid comprising a polynucleotide encoding a polypeptide as set forth in SEQ OD NO:1.

8. An isolated nucleic acid comprising a polynucleotide encoding a polypetide as set forth in SEQ ID NO:2.

9. An isolated nucleic acid comprising a polynucleotide encoding a polypetide as set forth in SEQ ID NO:3.

10. A composition, comprising a haptotactic peptide having a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3.

11. The composition of claim 10, further comprising a pharmaceutically acceptable carrier.

12. The composition of claim 10, further comprising a biological agent.

13. The composition of claim 10, wherein said haptotactic peptide is attached to the surface of a prosthetic device.

14. The composition of claim 10, wherein said haptotactic peptide is attached to a bead.

15. The composition of claim 10, wherein said haptotactic peptide is attached to a matrix.

16. The composition of claim 10, further comprising a cell selected from the group consisting of fibroblasts, endothelial cells, chondrocytes, osteoblasts, neuroblastoma cells, kidney cells, liver cells, pancreatic cells, thyroid cells, glial cells, nerve cells, smooth muscle cells, mouse mammary carcinoma cells, bone or cartilage forming cells, and combinations thereof.

17. A polymer composition, comprising:

(a) a plurality of subunits, each of said subunits featuring at least one haptotactic peptide selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3; and

(b) a plurality of linker moieties for attaching each of said plurality of subunits to another of said plurality of subunits to form the polymer.

18. The polymer composition of claim 17, wherein each of said plurality of subunits is comprised of said at least one haptotactic peptide, such that the polymer is a peptide polymer.

19. The polymer composition of claim 17, wherein said at least one haptotactic peptide is attached to said subunit, such that the polymer is a co-polymer.

20. A cell structure, comprising:

(a) a peptide having a sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2 and SEQ ID NO:3;

(b) a cell bound to said peptide; and

(c) a structure for supporting said cell, said peptide being attached to said structure such that said cell is supported by said structure.

21. The cell structure of claim 20, wherein said structure is a biomedical device.

Figure

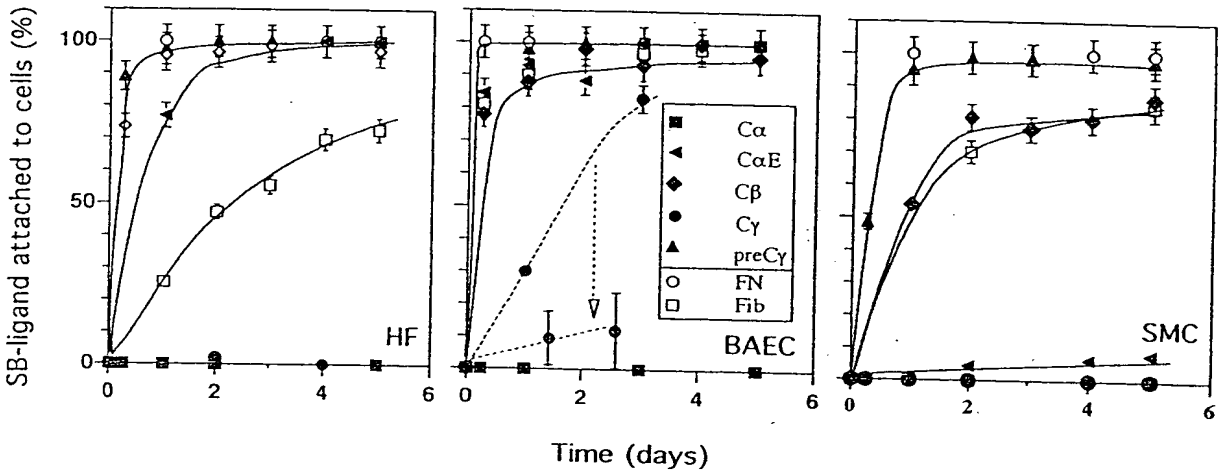
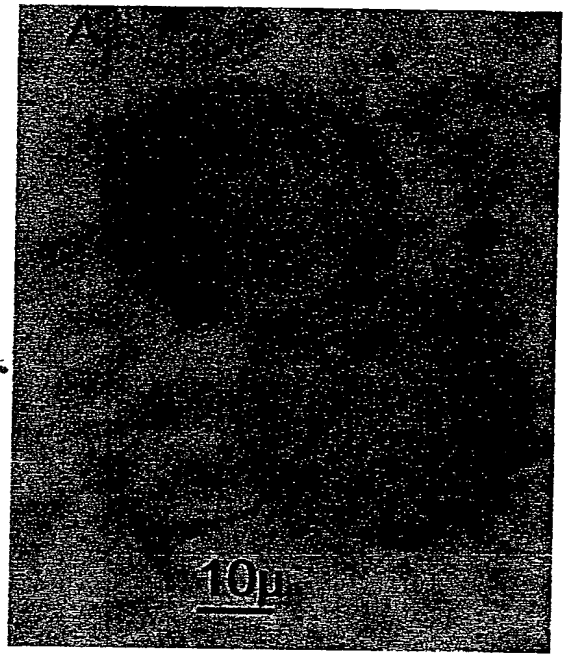


Figure 2

Attachment of BEAC to SB-Cβ



Internalization of particles of SB-Cβ into BEAC

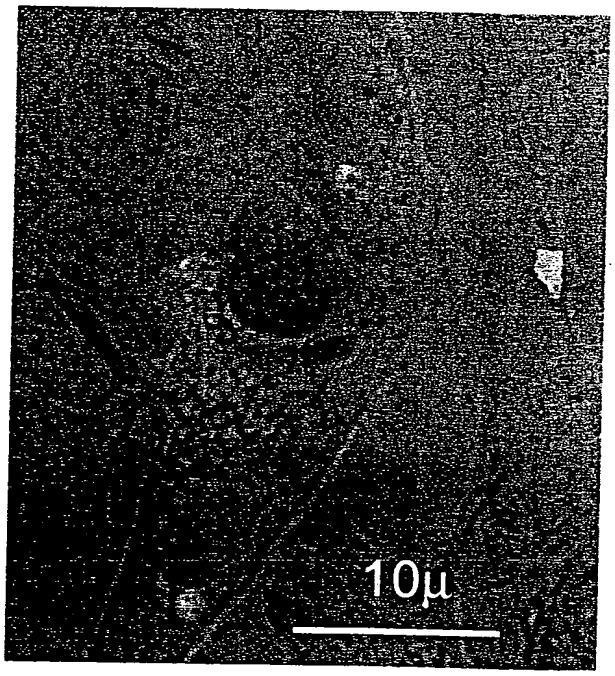


Figure 3

Binding of Cβ to BAEC and HF

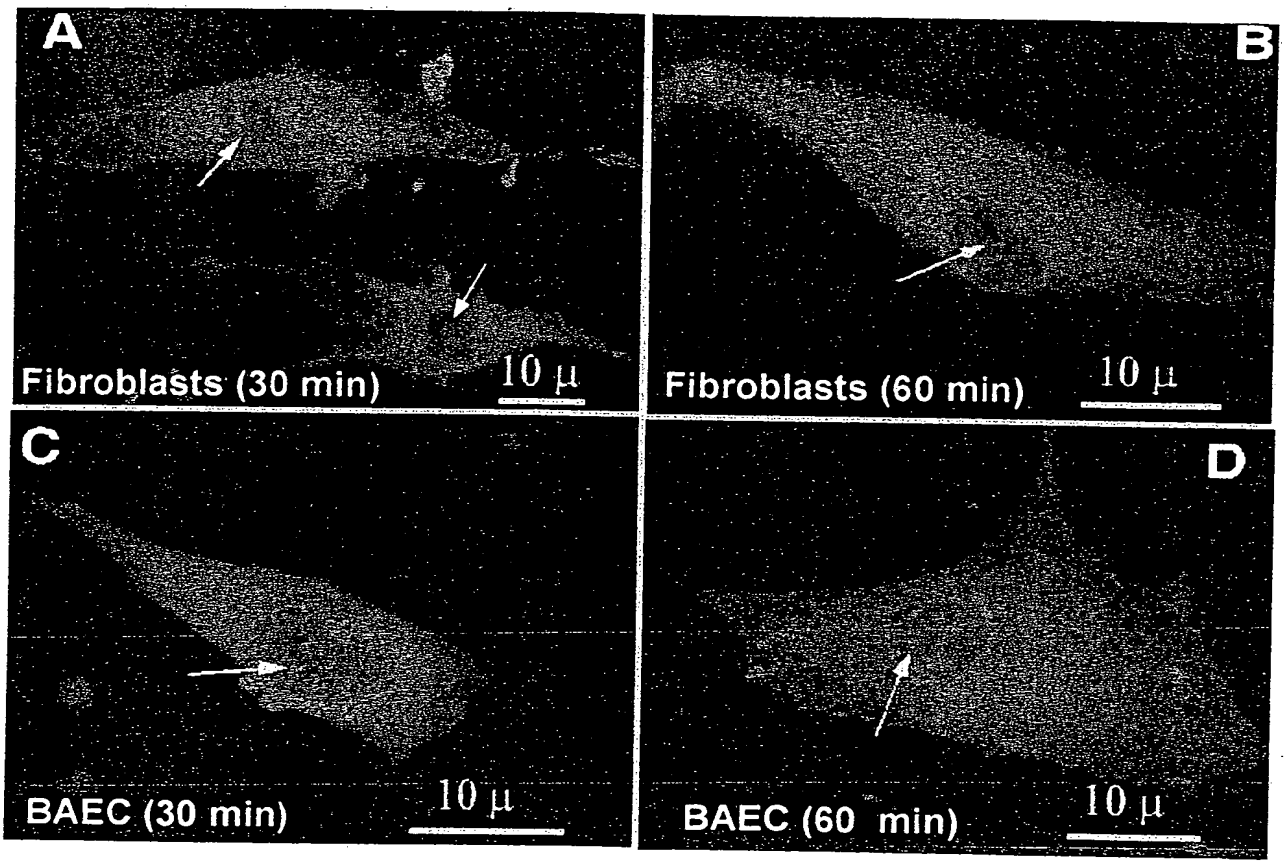


Figure 4

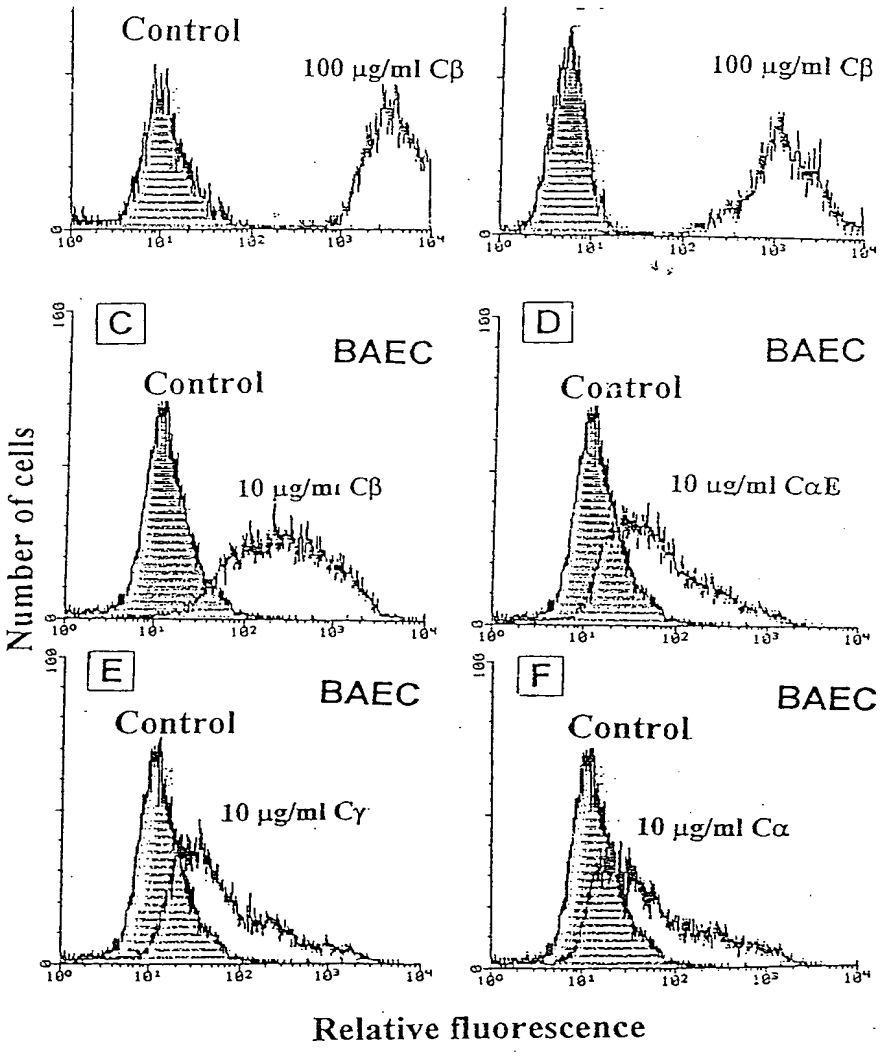


Figure 5

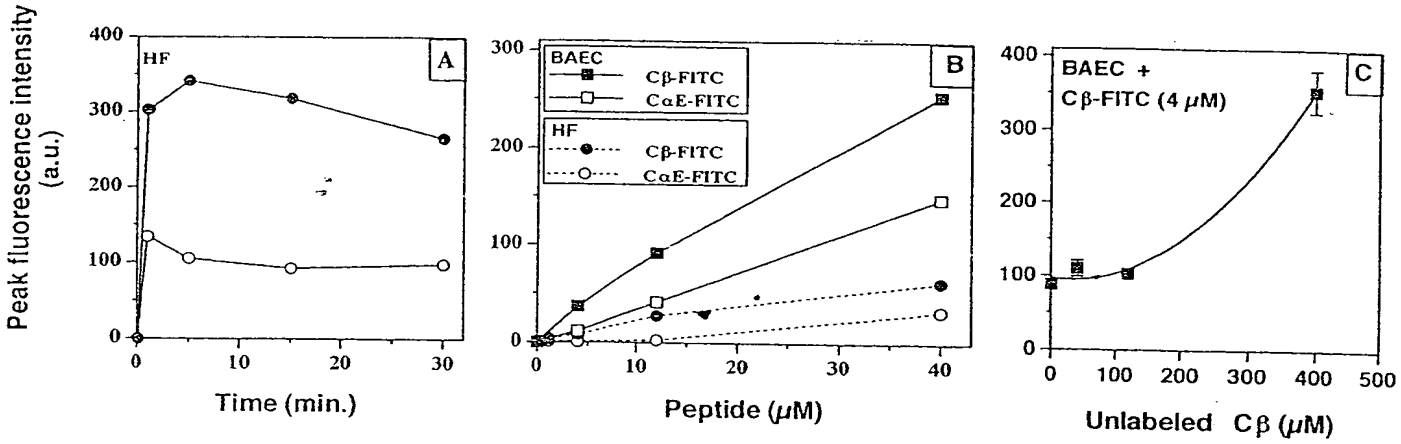


Figure 6

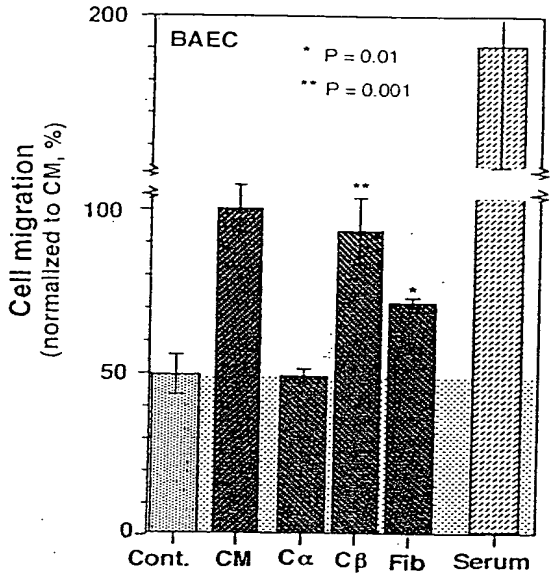


Figure 7